PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Plastics Container for Materials in Bulk

We, BIG DRUM INC., a corporation organised and existing under the laws of the State of Ohio, United States of America, of 1183 Essex Avenue, Columbus, State of Ohio, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to nestable and stackable containers and more particularly to a plastics container suitable for handling bulk quanities of materials.

Ice cream in bulk is commonly packaged and sold in 2 1/2, 3 and 5 gallon containers known as bulk cans. Specifically, these cans are cardboard with metal rims at top and bottom. Generally, the ice cream packaging process at the dairy includes placing many bulk cans in a line side by side (thereby requiring much space) and passing them under an automatic ice cream dispensing machine. The cans are then capped and stored until shipped to the distributor.

However, because of their design, the cardboard bulk cans cannot be stacked with the bottom of one container fully resting on the top of a like container otherwise they would be easily jostled and overturned. Consequently, they must be stored in pyramid fashion, thereby requiring added space. In the ice cream parlor, the cans are stored on top of each other in the counter freezers. However, when a store clerk attempts to scoop a portion of the hard ice cream from the can, the cardboard bulk cans have a tendency to slip and revolve due to the coating of ice which forms on their smooth top and bottom surfaces. Also, to identify the flavor container therein, one must move the cans and search for the identifying label.

Accordingly, it is an object of this invention to provide a container which avoids the aforementioned difficulties and limitations.

The present invention provides a plastics container for materials in bulk which container comprises a side wall, a closed bottom integral therewith and a removable top closure comprising a snap-fitting lid, the external surface of said lid having a plurality of radial grooves or ribs and the external surface of said bottom having a plurality of radial ribs or grooves, respectively, whereby the grooves or ribs of said lid co-operate with the ribs or grooves of the bottom of a second, like, container when the containers are stacked to resist rotation and horizontal displacement of the second container relative to the lid of the first, and wherein the bottom of the container comprises an annular portion and a flange portion extending toward the interior of the container from the innermost edge of said annular portion and inclined toward the vertical axis of said container, and said lid of said container comprises an annular portion and a flange portion extending away from the interior of the container from the innermost edge of said annular portion and inclined toward the vertical axis of said containers and adapted to engage with the bottom of a second, like, container when the containers are stacked.

A still further aspect of the invention includes a container which is easily nestable within a like container.

In the accompanying drawings:

Fig. 1 is an isometric view of a plastic bulk container embodying the invention.

Fig. 2 is an elevational view in section of the container of Fig. 1 stacked on top of a like container only a portion of which is shown.

Fig. 3 is a fragmentary under plan view of the bottom of the container of Fig. 1 illustrating the anti-skid surface of the container.

Fig. 4 is an enlarged fragmentary detail in cross-section of the anti-skid surface of Fig. 3.

Fig. 5 is an elevational view in section of the container of Fig. 1 in a like container.

Referring now to the drawing, as shown in

[*Price* ... 1.

Fig. 1, the container 10 has a side wall 12 and an integral bottom 14. The container 10 is further provided with a removable lid 16. On the external surface of the lid 16 is an annular anti-skid surface 17 of ribs and grooves, or riffles, which allows like containers to be positively engaged when containers are stacked as shown in Fig. 2.

Fig. 2 shows the container 10 positioned or stacked on a like container. The integral bottom 14 of the container 10 has an annular portion 22 having an anti-skid external surface 20 and a flange portion 24 extending toward the interior of the container 10 from the innermost edge of the annular portion 22 and inclined toward the vertical axis of the container 10. The lid 16 of the container 10 is provided with a surface configuration corresponding to that of the bottom 14 wherein 17, 19, and 21 of the lid 16 correspond to 20, 22, and 24 of the bottom 14 respectively. Thus, the lid 16 is adapted to receive the bottom 14 of a like container in positive engagement when the containers are stacked, the inclined flange portions 24 and 21 cooperating during stacking to aid engagement of the ribs and grooves of the bottom 14 and the lid 16.

As further shown in Fig. 2, the side wall 12 slopes slightly outwardly from the integral bottom 14 to the top 15. The side wall 12 is also provided at one end thereof opposite to the bottom 14 with an outwardly projecting peripheral shoulder 28 and a peripheral collar 30 extending vertically from the shoulder 28. The collar 30 terminates in a flange 32 extending outwardly and downwardly therefrom. The outer diameter (a) of the shoulder 28 is greater than the inner diameter (b) of the top 15 such that the shoulder 28 of one container 10 rests on the collar 30 of a like container, from which the top closure has been removed, when nested therein (Fig. 5). Again, the lid 16 is provided with a peripheral configuration wherein 29, 31 and 33 of the lid 16 corresponds to 28, 30, and 32 of the container wall 12. Thus, the lid 16 is received by the container 10 in snap-fitted fashion (Fig. 5) so as to protect the contents contained therein from contamination.

As shown in Fig. 3, the anti-skid surface of the lid 16 and of the container bottom 14 comprises a plurality of riffles 26. The configuration of each riffle 26 is readily demonstrated in Fig. 4. While it is preferred that the riffle 26 have the design as shown, any modification of the design of the ribs and grooves which would achieve the same anti-skid effects may be substituted.

While it is preferred to thermoform the plastics container of the invention from polyethylene of either the high density or low density type, other thermoplastic resins may be substituted, including polyethylene copolymers, polypropylene, copolymers of ethylene and propylene, and mixtures of such polyolefins, polystyrene and its modifications and other thermoformable plastics materials.

The proposed container may vary in design depending on its intended purpose. For example the base of the container may be of any desired shape or size, but in the preferred form of the invention, the base of the container has a slightly smaller diameter than the top in order to impart a slight taper to the walls of the container. The tapered walls facilitate the receipt of one container within a like container in nesting or telescoping fashion.

The plastics bulk container of the invention permits the use of much lighter weight material without any sacrifice of container strength. Also, because of the container's design it can be readily nested within a like container before the filling operation thus requiring minimum storage space. When ready to receive ice cream, the plastics container is easily removed from within a like container because of its substantially frictionless plastics wall. Furthermore, because of the anti-skid surfaces and configurations provided on the lid and bottom of the container, the container is quickly and securely stacked, one on top of the other, thus eliminating the need for the typical pyramid type arrangement employed with the cardboard bulk containers. Consequently, minimum amount of space is required to store the filled plastics container. In addition, the anti-skid surface prevents the stacked containers from revolving when hard ice cream is scooped therefrom. Because of the transparent properties obtainable with plastics, one can easily and quickly identify the flavor of the ice cream packaged in the plastics bulk container without having to search for the label. Such a feature is particularly advantageous to the ice cream truck driver when he is making his deliveries. Thus, excessive handling of the containers is eliminated, thereby providing quick and efficient service to the retailer as well as the consumer. Finally, the plastics bulk can is attractive and its clean appearance is easily retained in contrast to the unsightly cardboard bulk cans which have a tendency to soil and stain readily.

The proposed container may vary in size, including the typical 2 1/2, 3, and 5 gallon sizes, their choice depending on requirements.

While the aforementioned container is especially suitable for ice cream, the plastics bulk container can also be used for shipping, storing, and dispensing a wide variety of materials including, powdered and granular foods, syrups, and such items as paints, chemicals, and the like.

WHAT WE CLAIM IS:—

1. A plastics container for materials in bulk which container comprises a side wall, a closed bottom integral therewith and a removable top closure comprising a snap-fitting lid, the external surface of said lid having a plurality of radial grooves or ribs and the external surface of said bottom having a plurality of radial ribs

or grooves, respectively, whereby the grooves or ribs of said lid co-operate with the ribs or grooves of the bottom of a second, like, container when the containers are stacked to resist rotation and horizonal displacement of the second container relative to the lid of the first and wherein the bottom of the container comprises an annular portion and a flange portion extending toward the interior of the container from the innermost edge of said annular portion and inclined toward the vertical axis of said container, and said lid of said container comprises an annular portion and a flange portion extending away from the interior of the container from the innermost edge of said annular portion and inclined toward the vertical axis of said container and adapted to engage with the bottom of a second, like, container when the containers are stacked.

2. A container as claimed in claim 1 wherein said side wall slopes slightly outwardly from said integral bottom to the top.

3. A container as claimed in claim 2 wherein the side wall is provided at its top end with an outwardly projecting peripheral shoulder and a peripheral collar extending vertically from said shoulder, the outer diameter of said shoulder being such as to be supported by the collar of a like container, from which the top closure has been removed, when nested therein.

4. A container as claimed in claim 3 wherein said collar of said side wall terminates in a flange extending outwardly therefrom, and said lid has a configuration at its periphery corresponding to the configuration of said shoulder, said collar and said flange on said collar, of said container side wall, and is adapted to be received thereby in snap-fitting fashion.

5. A container as claimed in any one of the preceding claims wherein said container and said lid comprise thermoplastic polymeric material.

6. A container as claimed in claim 5 wherein the polymeric material is polyethylene.

7. A plastics container for materials in bulk which container comprises a side wall, a closed bottom integral therewith and a removable top closure, said container being adapted to be received in a nested arrangement within a second, like, container from which the top closure has been removed;

(a) said side wall sloping slightly outwardly from the bottom to the top;

(b) said side wall being provided at one end thereof opposite to said bottom with an outwardly projecting peripheral shoulder and a peripheral collar extending vertically from said shoulder; the outer diameter of said shoulder being greater than the inner diameter of said top, such that said shoulder may be supported by the top of a like container, from which the top closure has been removed, when nested therein;

(c) said collar of said side wall terminating in a flange extending outwardly therefrom;

(d) said integral bottom of said container comprising an annular portion and a flange portion extending toward the interior of the container from the innermost edge of said annular portion and inclined toward the vertical axis of said container;

(e) said removable top closure comprising a snap-fitting lid;

(f) said snap-fitting lid having a configuration at its periphery corresponding to the configuration of said shoulder, said collar and said flange on said collar, of said container, and is adapted to be received thereby in snap-fitting fashion; and

(g) said snap-fitting lid comprising an annular portion and a flange portion extending away from the interior of the container from the innermost edge of said annular portion and inclined toward the vertical axis of said container, and adapted to engage with the bottom of a second, like, container when the containers are stacked.

8. A container substantially as hereinbefore described and illustrated with reference to Figures 1 to 4 of the accompanying drawings.

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1145924 COMPLETE SPECIFICATION
1 SHEET *This drawing is a reproduction of the Original on a reduced scale*

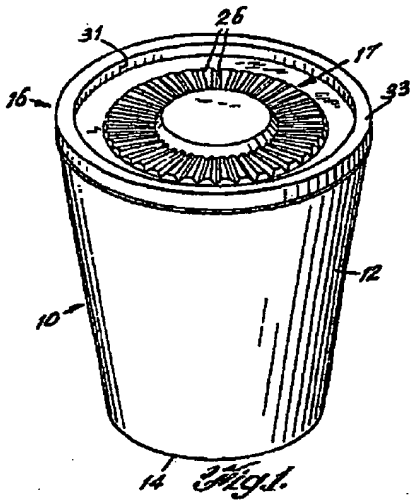

Fig. 1.

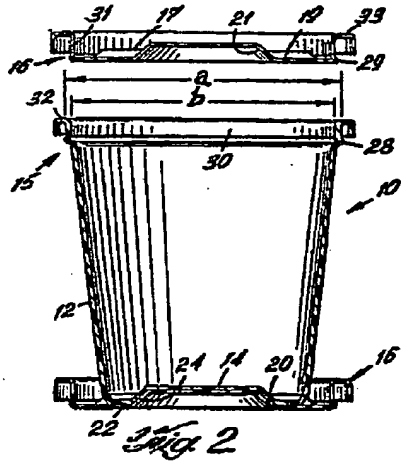

Fig. 2

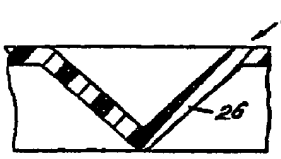

Fig. 4.

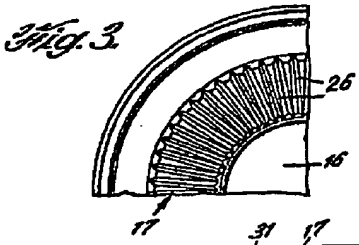

Fig. 3.

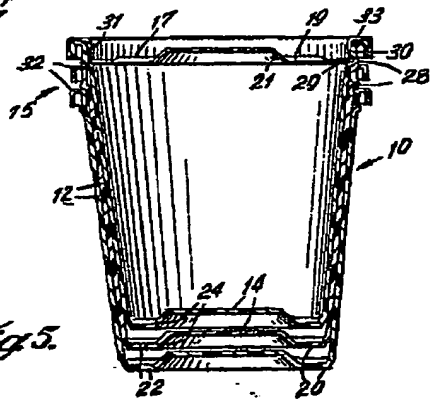

Fig. 5.